

REMARKS

The pending claims are patentable over Gongyuan Qu “Water Defect Detection Using Directional Morphological Gradient Techniques” (hereinafter “Qu”), in view of Rafael C. Gonzalez, “Digital Image Processing, 2/E” ISBN: 0201180758 (hereinafter, “Gonzalez”) at least because neither Qu, nor Gonzalez, whether taken alone or in combination, teach or suggest a morphological operation that makes use of a structuring element that is at least one of smaller and equal to a minimum distance between objects in the SEM image as required by claim 1. Examiner notes that Qu fails to disclose this element of claim 1 and asserts Gonzalez as overcoming this deficiency. Office Action dated May 6, 2009, page 4.

Gonzalez discloses a dilation technique for bridging gaps within a broken, or incomplete, image. *Gonzalez*, page 525. This technique includes using a structuring element to dilate a broken or incomplete image and bridge gaps within the image. *Id.* The maximum size of a gap within an image is known to be two pixels. *Id.* Even though the maximum gap size within an image is known, Gonzalez fails to provide how this gap size relates to the structuring element used to perform the dilation technique and further fails to provide a relative size of the structuring element when compared to the maximum gap distance. Furthermore, even if the structuring element of Gonzalez is based on the mentioned two pixel maximum gap size (which Applicant does not admit), the maximum gap size provided by Gonzalez is clearly different from a structuring element that is smaller than or equal to a minimum distance between objects as required in the present claims.

Gonzalez also discloses an erosion technique for eliminating irrelevant detail from a binary image by “eroding the image with a structuring element of a size somewhat smaller than the objects we wish to keep.” *Id.*, page 537. In the example provided, a structuring element of 13X13 is used to erode the image so that “only portions of the largest squares [of the image] remain.” *Id.* Thus, the size for a structuring element in Gonzalez may be set relative to the size of an object that should remain in the image. However, the structuring element of Gonzalez is not sized relative to distances between objects in an image as required by the present claims.

Thus, for at least these reasons, Gonzalez fails to teach or suggest a morphological operation that makes use of a structuring element that is at least one of smaller and equal to a minimum distance between objects in the SEM image as required by the present claims and Qu fails to overcome this deficiency. Therefore, the present claims are patentable over Qu and

Gonzalez, whether considered alone, or in combination. Applicant, accordingly, respectfully requests withdrawal of the rejections under 35 U.S.C. § 103.

Applicant respectfully submits that the present application is in condition for allowance. Please charge any shortages and credit any overages to Deposit Account No. 19-3140. Any necessary extension of time for response not already requested is hereby requested. Please charge any corresponding fee to Deposit Account No. 19-3140.

Respectfully submitted,
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